THE VETERINARY RECORD

A Weekly Journal for the Profession.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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"THE RECORD."

We feel that it is due to our readers, and especially to those of them who have enquired on the point, that they should know something of future arrangements. For the present no further change in the management is contemplated. It is an open secret that Mr. Hunting ceased active work in 1907, when he took up the appointment under the London County Council; and for the last four years has contributed only occasionally to our pages, his severe illness, followed by a long period of failing health, rendered that almost a necessity. Those who have worked with him are continuing the work, and his known views on most professional matters will be followed so far as they are not affected by changing conditions of professional work. It is not unlikely that other men may join the literary staff in the near future; and in all respects *The Record* will continue as heretofore" A weekly journal for the profession."

THE INTERNATIONAL VETERINARY CONGRESS.

The report of the meeting of the Organising Committee of this Congress, which we printed last week, reveals both good and bad progress. A great step forward has been made by obtaining recognition of the Congress from the Government. For the State to make a financial grant to any such Congress as this would be contrary to all precedent; and no one hoped that the rule might be broken in our favour. But the Foreign Office is encouraging the Congress and inviting delegates, and has promised to give a reception to them; and this is about as much as could be expected from a British Government. It will increase the number of foreign delegates, and so far make for success.

On the other hand, the Treasurer's report shows that subscriptions have fallen off woefully during the last three months. More than £300 is still required to reach the absolute minimum that has been estimated as necessary; and there is every indication that the Congress will be a record one and the minimum will be insufficient. The Treasurer's report should be read: there are two points in it which cannot be over-emphasised. About £3 will be spent upon each member joining the Congress; and therefore, unless he considerably exceeds his membership subscription of £1, he will be a source of actual loss. Again, the present total of £3,180 has been subscribed or promised by less than 300 men—that is, more than nine-tenths of us have not yet offered a shilling. When so few of us have brought the Congress to within sight of success, as it now is, surely the great majority will do the little still required to make success assured. It is true that we cannot all afford £3, but almost all can afford a little.

THE PATENT MEDICINE TRADE.

Some years ago *The British Medical Journal* undertook a long series of analyses of patent medicines. The results were published in a small book, which did a great deal of good. The same thing has long been needed in the case of proprietary medicines for animals, and Mr. Hobday and Prof. Lander have done a service to the profession by undertaking it. All the assistance they ask, in their letter published last week, is that members should supply them with unopened samples of the animal medicines most used in their districts—they will do the rest. Practitioners should respond readily to this, and the result may be really valuable. Some may hesitate to send particular preparations on account of the possibility that they have been analysed already, but no doubt the originators would willingly answer queries on that point.

SNAKE BITE (?)

A case which I have been attending recently has caused me some mystification, and I record it in the hope of receiving from your readers either corroboration of my suspicions, or a more satisfactory explanation of such unusual symptoms.

The cow was turned out one afternoon about five weeks ago, on a meadow which sloped down to a more wooded part with a good deal of undergrowth. Next morning the cowman found her laid, and great difficulty was experienced in inducing her to get up and walk home.

The cow moved very stiffly, and the left hindquarter of the udder was practically black. The other three quarters were quite normal. On arrival home, the cow fell down and did not rise for some days, appearing partially paralysed.

The original diagnosis was cold, but a closer examination of the affected quarter showed a hole about half-way up the teat. It was just as if a piece had been punched quite out, and was approximately the diameter of the ordinary teat opening, which was of course in the usual place.

The cow showed signs of severe systemic disturbance for some days, but eventually, after the

quarter had been injected with Chinosol solution, got much better in general health.

The affected quarter became gangrenous, and after a time the teat, and practically the whole of the gland substance sloughed away, leaving a large cavity which has now almost healed up.

At no time was there any alteration in the other quarters, and they secreted milk apparently normal in all respects. I am strongly of the opinion that the condition is attributable to snake bite, although nothing definite could be traced.

The peculiar punched-out hole in the teat, coupled with such a severe disturbance of general health, seems distinctly to point to this conclusion.

SYDNEY SMITH, JR.

Lowestoft, Oct, 22nd.

DIAGNOSIS OF TUBERCULOSIS.

Subject.—A red shorthorn heifer, which was suckling a calf. On examination the pulse, temperature, and respirations were normal. She was emaciated and hidebound, had had diarrhœa a few days before my examination. No cough was present, and on auscultation the lungs seemed normal. I proceeded to make an examination per rectum, and could feel some of the grapes on the rumen, as described by Mr. Broad, of Marlborough, in *The Record* of September 27th, 1913.

I advised the owner to report the case, but he refused and sent her directly to the knacker. Post-mortem showed her to be affected with tuberculosis of the peritoneum. I find on reference to Friedberger and Fröhner, Vol. II., page 361, the following method described:—"The presence of tuberculous proliferations of the peritoneum may be proved by introducing into the rectum, or by pushing the hand under the last false ribs."

The refusal of the owner to report the case, and the fact that he had the heifer destroyed there and then, illustrates one of the difficulties in carrying out the recent Tuberculosis Order.

I should like the opinions of the readers of *The Record* whether the owner and myself were liable to prosecution for failure to report. I am certain if I had done so I should have lost my client. Personally, I do not think it was necessary to report this case, as the animal was destroyed at once at the owner's loss entirely.

I should like to thank Mr. Broad, also, for his hint as to rectal exploration in these cases.

"NEMO."

ABSTRACTS FROM FOREIGN JOURNALS.

ENORMOUS HÆMATOMA OF THE SPLEEN IN A DOG.

Prof. Joest, in an annual report of the work of the Royal Veterinary High School of Dresden, records the following case. The subject was a male mongrel dog, about 53lbs. in weight, which was destroyed on account of a tumour in the abdominal cavity, associated with abdominal dropsy.

Post-mortem, the abdominal cavity was found to contain from 2 to 3 litres (roughly from 3½ to 5¼ pints) of a reddish transudate. The ventral surface of the spleen was occupied by a gigantic tumour-like body, exceeding the size of a man's head, weighing about 11lb., and of an irregular knobby shape. The colour of the tumour was dark red, and its consistence was firm. Its upper surface was united to the omentum. The size of this body caused the spleen, which was otherwise normal, to appear like a small appendage of the tumour.

Upon section, this apparent tumour proved to be not a tumour at all, but a hæmatoma. It contained coagulated blood, which was older at its peripheral parts and fresher in the central portions.

Joest's view of the case is that an effusion of blood had taken place gradually, till it amounted to more than a quarter of the actual body weight. The total quantity of the effused blood was about triple that normally present in the animal.—*Munchener. Tier Woch.*

METALLIC LIGATURE OF THE UMBILICAL CORD.

Hursch maintains (*Schweizer Archiv.*) that as a general rule the metallic ligatures employed in surgery present one great advantage over silk threads, etc., viz., that by reason of their impermeability, they oppose the passage of germs into the wounds. Hursch has used metallic ligatures with very good results for the ligation of the umbilical cord. By this method he not only uses an aseptic apparatus, but also, on account of the powerful constriction which it affects, he hinders the passage of external germs into the umbilical vessels. Properly applied, the metallic ring acts upon the umbilical cord much as castration clams upon the spermatic cord.

Hursch uses a special pair of pincers, between the teeth of which he places a metal ring. He passes the umbilical cord into the ring, and compresses the latter with the pincers until it assumes the form of a clamp about 3/5 inch long by from 1/12 to 1/8 inch wide. Immediately after applying the apparatus, he divides the cord very close to the inferior face of the clamp, and paints the region with an alcoholic solution of pyoktannin.

The procedure is a very quick one, and has been most favourably received by owners. Hursch considers that the simple ligature of the umbilical cord, as it is generally practised by breeders, presents many more disadvantages than advantages, for it very often entails complications from infections of the cord. He has found that, in regions where the ordinary ligation of the cord has been practised, half the foals have shown infection of the cord, and the farmers in consequence have given up the method.

It remains to be added that a ligature is dangerous when it is not applied very near to the abdominal wall, because it then exposes the portion of the cord situated above it to infection. On the other hand, it is advisable to abstain from washing the cord with antiseptics, because these impede the rapid mummification of the cord.—*Annales de Méd. Vét.*

Extension of an Inflammation of the Middle Ear into the Cerebellum in a Sheep.

Erhardt, a veterinary practitioner of Hersbruck, records the case of an ewe which came under treatment on account of the following symptoms. The head was continuously held low, and inclined to the left. The ewe maintained herself on her limbs with difficulty; and, if pushed towards the left, she fell to the ground and made convulsive movements with both fore feet.

The probable diagnosis arrived at was that of a cœnurus cyst; which seemed likely, from the symptoms shown, to be deeply situated, An exploratory trephining was therefore decided upon.

The skull was trephined about four-fifths of an inch from the medial line, at about the highest point of the left cerebral hemisphere. No trace of a cyst could be found. The ewe was then immediately slaughtered, and a post-mortem examination was carried out. This revealed an abscess in the left half of the cerebellum, filled with greenish pus, and in connection with the osseous auditory canal.

The owner then imparted the information that the ewe had been bitten on the ear by a dog some weeks before, and had afterwards shown an inflammation of the ear. The abscess was therefore the result of an extension of inflammation from the middle ear.—(*Munchener Tier. Woch.*)

Two Cases of Tuberculosis of the Brain.

Bergschicker, of Bartin, records the following cases;

An ox about six months old was operated upon on account of entropium of one upper eyelid, with a consecutive chronic keratitis. Healing by first intention took place, and the stitches were removed on the eighth day. The keratitis seemed to be clearing up.

Eight weeks later, Bergschicker found the ox with his body in an attitude resembling that of tetanus, and pressing his head against the wall. The cornea of the eye which had been operated upon had now cleared to some extent; and its inner side was seen to be beset with small nodules, doubtless of tubercular origin. Bergschicker diagnosed generalised tuberculosis, especially affecting the head and cerebral meninges. The animal was accordingly slaughtered.

Post-mortem, most of the organs were found free from tuberculosis, the spleen alone showing small isolated tubercular nodules. The carcase was well nourished. A moderate number of tuberculous centres, up to the size of a pea, were found in the pulmonary and mesenteric lymphatic glands.

All the membranes of the eye and the cerebral membranes, were beset with tubercles the size of millet seeds. The cerebral substance was quite free from tubercles.

It was impossible to decide whether the entropium had been the primary affection, and thel vascularisation accompanying the consecutive keratitis had favoured a tubercular infection of the eye, or whether the process had been exactly the reverse, and the eye had been infected from the interior of the body.

The latter view seems probably the correct one. At any rate, entropium and a diffuse opacity of the cornea were all that could be seen at the time of operation.

The second case was a cow, about ten years old, which had given birth to a living calf four weeks before her time. The after-birth had been retained, but this was said not to have specially influenced the general condition. Fourteen days after calving the cow was found in the morning lying apathetically with her head turned upon her neck; and, when the owner attempted to get her up, she fell into violent clonic-tonic convulsions of all the muscles of the body.

Bergschicker saw her ten minutes after the first seizure, and found her in the same condition. The frequence of the heart and respirations was increased. The temperature was normal. The convulsions continued to become more violent, without seeming to commence from any distinct group of muscles, while the pauses between the spasms gradually became shorter. Bergschicker was at a loss for a diagnosis, mentioning epilepsy, cerebral tumour and cerebral hæmorrhage as possibilities. The cow was slaughtered after an hour. The blood was almost black, and spurted with great violence from the cervical vessels at slaughter; and the contraction of the muscular system did not relax till some minutes after bleeding had been completed.

Post-mortem, a sapræmic metritis was found. In addition, the parietal pleuræ and parietal peritoneum, with the organs they contained, showed a moderate number of caseous tubercles the size of large peas. The under side of the diaphragmatic pleura bore a larger tuberculous growth. One mediastinal gland showed a caseous tuberculous nodule the size of a large millet seed. The remaining organs were free from tuberculosis, with the exception of the cerebellum, in which there was a caseous tuberculous centre larger than a pea, pressing upon the corpus medullare.—(*Berliner Tier. Woch*).

W. R. C.

List of Accredited Veterinary Colleges, U.S.A.*

The following is a list of accredited veterinary colleges, graduates of which are eligible for the Civil Service Examination for the position of Veterinary Inspector in the Bureau of Animal Industry, under the terms of the regulations governing entrance to the Veterinary Inspector Examination (Bureau of Animal Industry Circular 150):—

Alabama Polytechnic Institute, College of Vet. Med.
Chicago Veterinary College.
Cincinnati Veterinary College.
Colorado State College, Division of Veterinary Medicine
George Washington University, College of Vet. Med.
Grand Rapids Veterinary College.
Indiana Veterinary College.
Iowa State College, Division of Veterinary Medicine.

* This, and two following abstracts are from the Annual Report, Bureau of Animal Industry, Dept, of Agric., U.S.A.

Kansas City Veterinary College.
Kansas State Agricultural College, Vet. Department.
McKillip Veterinary College.
New York-American Veterinary College.
New York State Veterinary College.
Ohio State University, College of Veterinary Medicine.
St. Joseph Veterinary College.
San Francisco Veterinary College.
State College of Washington, Veterinary Department.
Terre Haute Veterinary College.
United States College of Veterinary Surgeons.
University of Pennsylvania, School of Vet. Medicine.
University of Toronto, Ontario Vet. College to include only those graduated during or prior to 1897.

Graduates of the following named colleges, which are not now in session, will be admitted to examinations:—

Columbian University, Vet. School, Washington, D.C.
Harvard University, School of Vet. Med. Boston, Mass.
McGill University, Vet. Dept., Montreal, Canada.
National Veterinary College, Washington, D.C.

Graduates of the following named foreign colleges will be admitted to examinations:—

Glasgow Veterinary College, Scotland.
Royal Veterinary College, London, England.
" " " of Ireland, Dublin, Ireland.
Royal (Dick) Veterinary College, Edinburgh, Scotland.
The New Veterinary College, Liverpool, England.
Veterinary College of Lemberg, Austria.
University of Melbourne, Veterinary School, Melbourne, Australia.

Brahmin Cattle in Texas.

Surra was found in an importation of zebu cattle shipped from Bombay, India, April 27th, 1906, but it was not allowed to escape from the quarantine. This occurrence not only served the purpose of an additional test of the efficiency of our international quarantine service, but at the same time gave the bureau actual experience with this disease, which from time to time has wrought such havoc among stock, especially horses, in oriental countries. It appears that over 30 years ago Mr. A. H. Pierce introduced into Southern Texas a number of so-called Brahmin cattle from India which were successfully crossed on the native cattle, with the result that their progeny were relatively free from ticks, while the native stock in the same pasture would be literally covered with these pests. As a consequence the Brahmin grades thrived under the same conditions which served to deplete the native stock. They not only withstood the semi-tropical weather conditions of the Gulf coast section, but their thin, tough skin, very short hair, and the seeming repugnance of their sebaceous secretion of insect life, rendered them immune to heavy tick infestation, while at the same time they were immune to Texas fever, their natural *habitat* being a tick-fever country.

Phenolized Blood in Inoculations.

The use of carbolized or phenolized blood, as described in the last annual report, has been continued during the year. The later results confirm the earlier observations in showing that the virus of hog cholera may remain in contact with comparatively strong solutions of phenol for weeks without noticeable impairment of its virulence. There seems to be little doubt that phenolized blood will gradually come into general use in connection with the "simultaneous method," as the presence of the phenol prevents the development of putrefactive bacteria and does not destroy the virus of hog cholera. This will enable practitioners to keep virus on hand for a reasonable length of time.

Considerable study has been given to the effect of different preservative agents on the virus of hog cholera as contained in the blood of sick hogs. In addition to the continued study of phenol, much attention has been devoted to thymol and formaldehyde. The results with regard to these, however, are not yet complete. Aside from the desirability of having some means of preserving the virus for use in simultaneous inoculations, it is also desirable to have some means of preserving disease-producing blood which is to be used later for hyperimmunization. Phenol is not satisfactory for this purpose, but it is hoped that some efficient germicide which is efficient against ordinary bacteria, but which does not materially affect the virus of hog cholera, will be found suitable for this purpose. Some attention has also been given to different preservatives for serum. These observations are not yet complete.

F. E. P.

Annual Report of the Civil Veterinary Department, North-West Frontier Province, for the year ending 31st March, 1913.

[Abstract.]

Under the head of "General Administration," the report states that "Mr. Woodley held the appointment of the Superintendent, Civil Veterinary Department, North Punjab and North-West Frontier Province, throughout the year 1912-13. Mr. Woodley was on tour in the North-West Frontier Province for 105 days, and travelled 2094 miles by rail and 1419 by road. He also held charge of the North Punjab Circle, and was on tour in that Province for 57 days.

The Superintendent inspected all the veterinary hospitals (15), and the offices of all the itinerating veterinary assistants in the Province.

Nine tonga lines were also inspected.

He attended and acted as a member of the Judging Committee at the following fairs and shows:—Haripure Cattle Show, Peshawar, Kohat, Bannu and Dera Ismail Khan Horse and Cattle Shows.

The Superintendent personally checked inoculations on three occasions in the Peshawar District, and once in the Hazara District. He attended an outbreak of surra in the Malakand Agency. He also checked the work of veterinary assistants in various districts. He interviewed the Revenue Commissioner twice for discussing official matters. As usual, during the course of his tours, the Superintendent interviewed District and Agency officers with a view to discussing veterinary matters, and inspected bulls and stallions where they were.

He also made an extended tour in the Hazara District in connection with the merino sheep-breeding.

He made the following purchases:—Three donkey stallions from the Hissar Farm for the Province, two bulls from Chakwal for the Hazara District, and twenty dumba sheep for the Civil Veterinary Department, Eastern Bengal and Assam.

Treatment of Diseases.

During the year under report 14,045 cases of epidemic diseases were reported, of which 3496 proved fatal, compared with 19,674 cases and 5245 deaths in the previous year.

One hundred and twenty-four pathological specimens were received from the subordinate veterinary staff, and they all were examined by the Superintendent, as compared with 51 for last year.

Contagious Diseases—Equine.

These were reported from all the districts and agencies. In all 368 cases were reported, of which 11 proved fatal, compared with 392 cases and 19 deaths in the previous year. These figures relate to non-selected districts only.

Glanders.—Five cases of glanders occurred against 11 last year. The diagnosis was confirmed in three cases,

and the animals were destroyed. The remaining two died before they could be examined by a veterinary practitioner.

One case of anthrax was reported from the Kohat District. The diagnosis was confirmed microscopically by the Superintendent.

Surra.—Twelve cases were reported during the year under report, of which two were reported to have died. Diagnosis was confirmed by microscopic examination.

Other Contagious Diseases.—Under this head 350 cases were reported, of which three died, against 358 cases and eight deaths last year. These include mange, strangles, tetanus and bursati.

Contagious Diseases—Bovine.

During the year 1545 deaths and 9890 cases were reported, against 1829 deaths and 11,509 cases last year.

Rinderpest appeared in four districts of the Province. In all 1755 cases were reported, of which 708 died, against 1394 cases and 707 deaths last year. The disease was most prevalent in the Peshawar District. During the year 15,266 animals were inoculated in 61 outbreaks against 8,848 animals in 38 outbreaks last year. Rs. 2600 were paid by Government on account of cost of anti-rinderpest serum.

Hæmorrhagic Septicæmia occurred in five districts. 637 cases were reported, of which 575 proved fatal, against 997 cases and 888 deaths last year. 731 healthy animals were vaccinated against this disease in nine villages where it usually occurs. Last year 189 animals were vaccinated in twelve villages.

Foot-and-Mouth Disease occurred in four districts and one agency. Kurram Agency suffered the most. In all 7,117 cases were reported, of which 15 died, against 8,827 cases and 48 deaths last year. As usual, the necessary preventive measures were adopted by the subordinate Veterinary staff.

Black-quarter was reported from four districts; 138 cases occurred and 124 proved fatal compared with 194 cases and 166 deaths last year. 2,700 healthy animals were vaccinated against black-quarter. None were performed last year. The disease did not re-appear in any of the villages where the vaccinations were performed, hence the efficacy of the vaccine cannot be judged.

Anthrax. No cases in cattle were microscopically diagnosed during the year.

Other Contagious Diseases. 243 cases of other contagious diseases (including mange, tuberculosis, tick fever, tetanus, gillar, and actinomycosis) were reported, of which 123 died.

Contagious Diseases—Other Animals.

Disease.	Attacked.	Died.
Rinderpest	2255	1587
Foot-and-Mouth	732	35
Hæmorrhagic septicæmia	193	190
Anthrax	2	2
Other contagious diseases *	555	126
Total	3737	1940

Compared with *7773 cases* and *3397 deaths* last year.

* Mange, rabies, fowl cholera, distemper, liver rot, camel-pox, sheep-pox, and contagious pleuro-pneumonia.

Treatment of disease on tour. During the year 1377 villages were visited by Veterinary assistants on tour, and 10.944 animals were treated. Last year 1352 villages were visited and 12,671 animals treated. 517 castrations were performed, chiefly in equines, as compared with 584 last year.

Veterinary Hospitals.

During the year there were 19 Veterinary hospitals in the Province, and the total number of animals treated in these institutions was 49,465. Last year 48,134 cases were treated in the same number of hospitals.

Peshawar District. Peshawar Hospital was practically completed during the year, but additions are still required. When complete it will probably be the finest hospital in Northern India. Charsadda Hospital is complete. Mardan, Swabi, and Nowshera still require operation and cattle sheds.

Hazara District. Abbottabad Hospital.—Dog kennels and segregation stables are required. Mansehra Haripur also require segregation stables, but are otherwise complete.

Kohat District. Kohat and Hangu hospitals are complete. Teri Hospital requires operation, cattle shed and stallion stables.

Bannu District. Bannu Hospital is complete. Sarai Naurang Hospital still requires an operation shed.

Dera Ismail Khan District. Dera Ismail Khan Hospital is complete. Chaudhwan Hospital requires segregation and stallion stables. A new hospital is required at Tank, as the original one was required for the Border Military Police, and the work is now being carried on in a temporary building.

Malakand Agency. Dargai Hospital is sufficient for the requirements, but a stallion stable is wanted.

Kurram Agency. The Parachinar Hospital is still in need of contagious ward and dog kennels.

Tochi Agency. Miranshah Hospital is sufficient for the requirements, but a separate stallion stable is indicated.

On the whole the progress of construction has been satisfactory, and in a few years all the hospitals should be complete, but many will annually require extensions. The treatment at all the hospitals is free.

[Space does not permit any details under the heads of Breeding Operations, Fairs and Shows, Subordinate Establishment. Under Expenditure, the annual cost is put at "Rs. 55,045, against Rs. 39,682 in the previous year. The increase appears chiefly due to the expenditure connected with the horse and cattle shows held during the year under report."]

General Remarks.

The results on the work of the year may be considered as most satisfactory. A similar remark was made last year, but during the year under report the number of animals attacked with contagious diseases has decreased by 5,629 cases, and the mortality therefrom by 1,749. Breeding operations, chiefly horse and sheep, have improved and increased.

Preventive inoculations and vaccinations show a large increase on previous years, and in most places the people readily adopt it. In some cases it appears that inoculations were begun too late, and by that time most, if not all, the susceptible animals had died or taken the disease and only the immune animals were left, consequently in such cases inoculation is of little use. Reports of outbreaks are often received too late, and the veterinary assistant through ignorance or carelessness inoculates when it is unnecessary, and hence a certain amount of serum is wasted. Statistical results of inoculations in these cases look very well on paper, but probably they would be different if the inoculation had been started at the very beginning of the outbreak. More promptness in reporting by the patwari, the early performance of inoculation, and strict superior supervision are the three great factors necessary for better results.

Horse-breeding is flourishing, and great keenness is shown by the people of Bannu, Peshawar, and the

Kurram Agency. The standard scale of horse stallions has been increased by one in the Kurram Agency. Bannu and Dera Ismail Khan also require an extra stallion each. The Political Agent of the Kurram Agency intends holding an annual horse and cattle show in future. This Agency is very subject to the ravages of cattle diseases, and consequently the veterinary assistant at Parachinar is frequently having to go on tour. The Superintendent is of opinion that an itinerating veterinary assistant is urgently required for this work with his headquarters and a branch dispensary at Saddar or Alizai. A new stallion stable consisting of one horse and one donkey, has recently been opened at Alizai.

The thoroughbred Australian stallion which was supplied to the Bannu District through the Quartermaster General, was found on arrival to be hereditarily unsound, and consequently he was not allowed to be used for stud purposes. An enquiry is being made by the Deputy Commissioner.

Three donkey stallions were supplied by the Hissar Farm during the year, at a cost of Rs. 600 each ; the price previous to this used to be Rs. 450. They were a poor lot of animals, and the only ones available at the time. Donkeys similar to this lot can be got in the local market for about Rs. 150 each. One of the Hissar bred donkeys received in February, 1911, had to be cast as he refused to cover, and one out of the new lot received in December, 1912, is a similar failure. This is the third case which has come under the notice of the Superintendent within the last year.

The Superintendent toured in Kaghan during last June and July in connection with the merino sheep-breeding experiments, and submitted his report on the same to the Revenue Commissioner. The breeding results were most encouraging and satisfactory. There were then close on 300 cross-bred lambs. The Dhariwal Woollen Mills Company, to whom a sample of the cross-bred wool was sent, expressed the opinion that it was the finest sample they had yet seen in India. The question of opening up a wool trade with Kaghan is being considered by this company, and they were kind enough to offer Rs. 200 for prizes in connection with a sheep show to be held during the coming year. This offer was accepted and agreed to by the Deputy Commissioner, Hazara, but unfortunately the show had to be cancelled, as the Superintendent, Civil Veterinary Department, could not perform the journey owing to objections from the Accountant-General's Office. The matter is most regrettable, as the experiment should receive every encouragement in the initial stage, which has so far proved very promising.

The Superintendent again records the unsatisfactory way in which he has to perform his work and carry out inspections in such a hurried manner owing to the large extent of his circle both in the Punjab and the North-West Frontier Province, but he notes with pleasure that a separate officer will probably be sanctioned during the coming year for the North-West Frontier Province alone.

V. DE V. H. WOODLEY.
Superintendent, Civil Veterinary Department, North-West Frontier Province and North Punjab.

The covering letter by Lieut.-Col. C. B. Rawlinson, Agent to the Governor-General, N.W. Frontier Province, concludes :—

"The question of the appointment of a whole-time Superintendent for this Province is still under consideration by the Government of India ; it is understood that sanction to the appointment will be shortly announced.

"In conclusion the Chief Commissioner has much pleasure in acknowledging the excellent services rendered by Mr. Woodley during the year."

Annual Report of the Veterinary Inspector Newcastle-on-Tyne for the Year 1912.

[Abstract]

To Alderman Sir Henry W. Newton, J.P., L.F.P.S., Chairman of the Executive Committee under the Diseases of Animals Acts of the Corporation of Newcastle-upon-Tyne.

Sir,—I have the honour to present this Annual Report, on the duties performed under the Contagious Diseases of Animals Acts for the year ending Dec. 31, 1912.

Diseases of Animals Acts, 1894-1912.

During the past twelve months nineteen outbreaks of contagious disease (as defined by the Acts) occurred amongst the animals within the City, as compared with three during the previous year.

[After remarks upon anthrax and the scope of the Tuberculosis Order, 1913].

Foot-and-Mouth Disease. On Monday, July 1st, the disease was discovered in several of the herd of 36 cattle in a field at Benwell. The foot-and-mouth disease restrictions were about to be removed and the district entirely freed on or about the 20th September. On the 17th September, however, the Veterinary Inspector was called to a farm in the Walker district to examine some swine which were ill. Several of these were found to be suffering from foot-and-mouth disease.

No new swine had been brought to the farm at Walker for at least seven months prior to the outbreak, yet the disease occurred and spread rapidly amongst them before any cattle were obviously ill. A new cow had been purchased from the Hexham district only a week prior to this outbreak. When the owner purchased the cow at Hexham he was for some considerable time in close company with another farmer who, it subsequently transpired, had a number of cattle at home suffering from foot-and mouth disease. There are reasonable grounds for suspecting that, in this case, the disease was conveyed, by the farmer's clothes, from the infected cattle and transmitted by the second farmer to his premises at Walker, for on returning home he immediately handled some of his young pigs. Within the next four days several of these young pigs were reported ill, hence the discovery of the outbreak. The restrictions were finally removed by an Order to that effect on the 26th November, 1912, the district being thus free from restrictions as to the movement of cattle for the first time since the last day of June, 1912.

During the period that the Durham and Northumberland and the Newcastle and District (Foot-and-Mouth Disease) Orders of 1912 were in operation, 2,800 licences were granted within the city for the removal of stock ; and 125 duplicate licences were received and inquiries made in accordance with the Orders under which they were granted.

Modern Abattoirs. During the period of operation of the Foot-and-Mouth Disease Orders requiring animals to be licensed for removal from the cattle market direct to slaughter houses within certain areas only, there was ample evidence of the necessity of Public Abattoirs wherein cattle should be slaughtered and the carcases subjected to official inspection. This would be valuable not only from the Agricultural point of view by tracing the source of animal diseases, but also from the Public Health point of view ; *e.g.*—a number of uninsured cattle (cows) were slaughtered within the city by country butchers, several being found to be extensively diseased (tuberculosis), and were condemned and destroyed as unfit for food. Had these animals not been slaughtered within the city, it is almost certain that their diseased carcases would have been disposed of for human con-

sumption in precisely the same manner as is well known to many traders in cattle of that class.

Swine Fever.—During the year one outbreak of swine fever occurred in a herd of 22 swine on a farm within the city. The premises were promptly placed under movement restrictions and dealt with in accordance with the requirements of the Swine Fever Order of 1908. During the year, 1375 duplicate licences, granted under the Swine Fever (Regulation of Movement) Order of 1908, have been received from various Local Authorities and the necessary inquiries made concerning the swine so moved. Within the same period 9343 licences have been granted within the City for the removal of swine.

Parasitic Mange. During 1912 sixteen outbreaks of parasitic mange occurred within the city, some 35 horses being found affected with the disease.

Exportation of Horses. For the purposes of the Exportation of Horses Order of 1910 (No. 2) and the Horses (Importation and Transit) Order of 1912, the export animals, vessels, fittings and the cleansing and disinfecting, etc., of the latter, have been regularly inspected. Suggestions for the improvement of embarkation of the animals and the prevention of injury to animals' heads whilst on board (overhead anti-concussion beams) have been made, and are now under consideration by the shipping company. During the year 1912 there were 3,625 horses presented at the quayside for examination prior to embarkation. Of these 119 were rejected as being unfit, permits for the remaining 3506 being granted by the Board's Veterinary Inspector.

The Sheep-Dipping (Scotland and North of England) Order of 1907. Under the above Order certificates have been granted from time to time (some 50 in all) to persons removing sheep to other markets.

Vessels arriving from other parts of the Kingdom. During the year 51 visits were paid to vessels arriving coastwise for the purpose of the Animals' (Transit and General) Order of 1912. The numbers of animals landed at the quayside during the year were 561 horses, 607 cattle, 1,095 sheep, 7,011 swine, and 1 calf.

Horse and Cattle Fairs and Weekly Horse Sales. For the purposes of the Diseases of Animals Acts generally, the cattle and horse fairs on Town Moor and in the Cattle Market have been regularly visited, whilst the weekly horse saleyards and auction marts have been visited regularly for the purposes of the Glanders and Farcy Order of 1907 and the Parasitic Mange Order of 1911.

Cattle Market. The weekly cattle markets have been regularly visited, and the animals subjected to regular and frequent inspections. The following table shows the numbers of cattle, etc., exposed for sale therein.

Year.	Cattle.	Calves.	Sheep.	Swine.
1892	105,088	7,192	373,639	30,798
1902	100,358	6,928	354,636	37,918
1912	48,222	4,646	227,046	32,562

In 1910 there were 77,347 cattle, and in 1911, 70,337.

Cattle and Licensed Pig Lairs. There are thirty cattle and licensed pig lairs within the city, and for the requirements of the Swine Fever Order of 1908, and the Market and Sales Order of 1910, 1,134 visits to them were paid during the year.

Railway Waggons and Cattle Docks.—For the requirements of the Animals' (Transit and General) Order of 1912, the Railway Cattle Docks have been regularly inspected (152 visits being paid) during the year. The same remarks apply to the railway waggons.

The Late Alderman J. Armorer Baty. I wish here to record my appreciation of the great encouragement, support, and sound advice given to me from time to time by Alderman Baty, the late Vice-Chairman of the Sanitary Committee, and as Chairman of the Cattle Trade Committee. In the work of combating animal contagious diseases within the city, the late Alderman Baty rendered a service, extending over many years, of which any local authority may feel proud.

Your obedient servant,

THOMAS PARKER, F.R.C.V.S.

Vety. Inspector and Inspector of Meat, etc.

Town Hall, Newcastle-upon-Tyne.
June 30th.

VICTORIA VETERINARY BENEVOLENT FUND.

The quarterly meeting was held at 10, Red Lion Square, London, on Thursday. October 9th. Present: Messrs. Trigger, Garnett, Slocock, Spicer, Wharam, Dunstan, Sumner, West, and the Secretary.

The minutes of the last meeting were read and confirmed.

THE SECRETARY'S REPORT.

I have only a little matter to report for this quarter.

Financial. I estimate our expenditure for the following three months to be about £85 for relief. We have in the bank a sum to meet this of £80.

There will be dividends on consols, and Norwich Corporation stock some £27.

This will be all the money available to pay for printing, postages, and incidental expenses for the past year.

Included in the sum of £80, is the sum of £27 donations, which, according to Rule 4, must be invested.

The subscriptions in arrear amount to £40.

You will see by this statement that our financial position is by no means satisfactory. I hope, however, it may be possible to obtain a sufficient number of new subscribers to help us over our difficulties.

Old Recipients. I have received communications with reference to one of our recipients, and am making inquiries as to the justification of the contents. In the meantime I have suspended the monthly grant.

During the following three months it is my intention to again verify the position of all our recipients. At the present time I think all grants should be continued.

In the case of Mrs. W., I have letters from Mr. Reavy pointing out the urgency of a suitable education for the children, and would suggest that the grant in this case might be increased from 5s. to 10s. per week. You will remember this case was referred to us by the Executive Committee in Ireland.

I have had one further application for relief, which, after making every enquiry, I cannot recommend for the consideration of the Council.

I am in communication with the National Veterinary Benevolent and Defence Society, and in no case is there any overlaping, but as a matter of fact a cordial co-operation.

I must still express a wish that every effort be made to give publicity to the work of our Fund, and beg of subscribers to remit the subscriptions now in arrear to save further expense in literature and postage.

On the motion of Mr. Garnett, seconded by Mr. Sumner, the question of the continuation of a grant to one of the old recipients was held over pending further enquiries to be made by the Secretary.

An application for an increased grant to one of the old recipients was duly considered. Proposed by Mr. Wharam, and seconded by Mr. Slocock, the financial position of the Fund was such that no increase could be made in the grant.

The report of the Secretary was confirmed, subject to the foregoing resolutions.

Correspondence from Colonial members, Messrs. Reakes and Amos, was read.

The members of Council cordially recognise the kind offers of help, and desired the Secretary to keep in touch with the correspondents with a view to the development of further help and assistance from abroad.

LIST OF NEW SUBSCRIBERS FROM JULY, 1913.

	£	s.	d.
Balden, John, Stocksfield-on-Tyne	5	0	0
Amos, S. T. A., Durban	2	2	0
Barnes, C. T., Cheadle, Stoke-on-Trent		10	6
Baker, A., Lismacue, Bansha, Ireland		10	6
Arnold & Son, Giltspur Street, London	2	2	0
Gryspeerdt, L. G., Croydon		10	6
Heney, Fred. A., Dublin, increased to	1	1	0
Blackwell, W. E., Towcester, Northants		10	6
Heatley, T. G. Woodbridge, Proceeds of Bowls Tournament	5	4	6
Waters, W., Blofield, " " "	2	0	0
Wilkinson, H. E., Martham. Tournament for the Victoria Veterinary Benevolent Bowling Cup	1	5	0
Smart, W. W., (Donation)	1	1	0

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

A meeting was held at the Royal (Dick) Veterinary College, Edinburgh, on Saturday, 25th October, at 3 p.m. The members present were: Professors J. R. U. Dewar, A. Gofton, A. Wilson, and T. C. Matheson, Edinburgh; Messrs. A. McKenzie, Kirkcaldy; J. Cameron, Jun., Berwick-on-Tweed; J. Aitken, Jun., Dalkeith; A. Baird, Edinburgh; T. M. Inglis, Forfar; J. P. Hamilton, Dundee; J. Storie, senr., East Linton; J. Riddoch, D. S. Davidson, J. L. Cormack, Edinburgh; J. McFarlane, Doune; T. P. Young, Leith; and James Henderson, Hon. Sec. Visitors: Messrs. Wm. Mitchell, Wm. Peggie, and Dr. McLeod.

Apologies for absence were received from Professor Bradley, Messrs. J. G. Reynard, Alex. Wallace, J. Peddie, P. Wilson, Wm. Anderson.

A letter was received from Mr. F. W. Garnett stating the urgency for subscribing to the funds for the Tenth International Veterinary Congress.

Prof. GOFTON proposed that this year we, as a Society, should subscribe the sum of three guineas.

This was seconded by Principal Dewar, and agreed to.

ELECTION OF OFFICERS.

President.—Mr. John Riddoch, proposed by Mr. Peter Wilson, and seconded by Principal Dewar.

Vice-Presidents.—Prof. Gofton and Messrs. Peter Wilson and J. Storie, Sen., proposed by Mr. A. Baird, seconded by Mr. J. Aitken.

Hon. Secretary and Treasurer.—Mr. James Henderson, proposed by Mr. A. Baird, seconded by Principal Dewar.

Auditors.—Messrs. A. Baird and J. Riddoch, proposed by Mr. J. Aitken, seconded by the Secretary.

Council.—Prof. Bradley, Messrs. R. Reid, A. Baird, and T. M. Inglis, proposed by Prof. Gofton, seconded by the Secretary.

Mr. WM. PEGGIE, of Biggar, was nominated for membership by Mr. Peter Wilson, seconded by Principal Dewar.

MUTABILITY OF THE TUBERCLE BACILLUS.

Dr. ALEX. JAMES.

When I promised your Secretary to read to you today this paper on the "Mutability of the Tubercle Bacillus," I had in my mind an incident which happened here in Edinburgh a good many years ago. It was in 1899, some years after Koch had given to the world the story of his detection of the tubercle bacillus, and of his recognition of it as the factor of consumption in the individual, and some years also after the view that this tubercle bacillus and its transmission from person to person, was practically the sole factor of the disease, consumption, in the community. Our municipal authorities, ever on the alert for measures to promote public health, had asked some of us medicals to meet with them, and to discuss what might be done by the municipality to prevent, or at any rate to lessen, this spread of infection.

Accordingly, along with some dozen others, I found myself before the Public Health Committee. I need not recapitulate all that was said that afternoon, it is all minuted and printed, but I wish to tell you that in connection with the question of infection from milk, and from person to person in consumption, one thing which I said was, "You may kill off every tuberculous cow, you may banish every phthisical patient, the conditions under which cows and people live remaining the same, you will have the disease back again as bad as ever in a few months." This statement, I remember, came as something like a shock to many of those around me, but now after the lapse of all these years, I have to say that I am still practically of the same mind.

Here I would point out that there is no one more willing than I to acknowledge the wisdom of Faraday's saying, "In knowledge, that man only is to be contemned and despised who is not in a state of transition." "Nor is anything more adverse to accuracy than fixity of opinion."

I am well aware of the truth of all this, but I would point out that in knowledge, as in morality, we have had big and broad and wise principles handed down to us as convictions from the remotest times, principles the wisdom of which is such that they are true and right for all times, and that if in what we hear or see, or are called upon to do we recognise that a violation of these principles is entailed, it is well for us as for our fellow men that we, figuratively speaking, call a halt.

To pass from generalities to particulars, what I meant then, and what I maintain yet, is that the tubercle bacillus is an organism, not specially created by Providence to be a source of suffering and death to man, but simply the virulent transformation which takes place in a harmless and almost certainly useful organism, when by man the principles which Providence has ordained as necessary for the maintenance of a healthy and good life are being violated. This can be illustrated perhaps most aptly by the pneumo-coccus, and the disease pneumonia.

As you all know, the pneumo-coccus is in the mouth of practically every human being, and so long as the individual is leading a healthy life in healthy surroundings, it is performing there a useful function. But if, as the result of ignorance, slothfulness, improvidence or excess on the part of that individual, or of the selfishness, greed, recklessness, or vice on the part of his fellows, the maintenance of good health in face of the ordinary strains and exposure of life is rendered impossible; then in that individual the harmless and useful pneumo-coccus is very likely to become, as regards him, virulent, and the disease pneumonia, and often death a result.

What is true of the pneumococcus and pneumonia is true of many other organisms and diseases as well. But at present we have to consider it only with reference to the tubercle bacillus and tubercular disease.

To this I would now direct your attention, but before going into particulars, let me endeavour to clear away some difficulties which might at this stage seem to militate against what has just been said. When I say, as I have said, that—as the result of certain circumstances, &c., the useful and harmless pneumococcus is very likely to become as regards that individual virulent, and to cause disease and often death, I do not for a moment infer that that individual must be the sole sufferer. I frankly admit that should that individual fall ill with pneumonia, and should he be living among people whose health is below par from causes akin to those which have brought on his own disease, and should he and they be living in an environment which is crowded and insanitary, then it is not at all unlikely that his disease may spread among them by infection. We know, for example, that in many parts of Russia the disease scurvy is looked upon as an infectious disease, and when we reflect that in those parts there are times during which whole village communities are, through privation and exposure, living on the verge of developing the disease, it is quite comprehensible that the malady, having broken out in one individual, this case will be followed by a whole crop of others, just as a conflagration will follow the ignition of one in a bundle of dry sticks which by being constantly rubbed against each other are becoming hotter and hotter. Yet, although we must admit that there must be instances in which isolation of a scurvy patient might be of advantage, we can never assert that we shall stamp out scurvy by efforts to isolate and stamp out the organism on which it undoubtedly depends.

And now as regards the tubercle bacillus, and its mutability. As you are all aware, since Koch demonstrated his acid-fast bacillus, in human and bovine tubercular lesions, it has been shown that acid-fast bacilli, showing very similar anatomical characters are really widely spread organisms. As well as the human and bovine, we know of the bacillus in mammals, and in the bird, the fish, and the reptile. We know also of the butter bacillus, the smegma bacillus, the dung, the timothy and Johne's bacillus, and others.

It was pointed out by Bacon long ago that among men two types of mind can usually be recognised, one best fitted to see differences, the other best fitted to see resemblances. In this connection it is, I think, not far from the truth to say that the laboratory worker, working with microscope and culture tube, within the four walls of his laboratory, is likelier to represent the first type, and the clinician, working among all sorts and conditions of men and animals, and over wide areas is more likely to represent the second. Keeping those points in mind, I would at this stage venture to assert that whilst on the one hand, no one may have been able to transform a smegma or a timothy into a human or a bovine bacillus to the satisfaction of the laboratory worker, yet on the other hand, that the tubercle bacillus, human or bovine, shows such infinite variations as regards its anatomical characters and pathological effects, that the only satisfactory attitude which the clinician mind can assume is to believe that the human and bovine and many other bacilli are practically all blends of one common stock.

We are told for example, as regards differences between human and bovine tubercle that whilst human tuberculous material injected in rabbits generally produces small discrete lesions on the organs, which tend to retrogress, bovine tuberculous material induces a progressive disease with large caseating masses. Yet we have it that the Royal Commission of 1908 found—

(1) That with bovine tuberculous tissue into bovines, in some cases a progressive and rapid tuberculosis spread, whilst in others a limited retrogressive tuberculosis would result. Also

(2) That with human tuberculous tissue divided, however, into two groups, because taken from different tuberculous parts, one group would in bovine give rise to a fatal generalized progressive tuberculosis, and the other group for the most part to a retrogressive tuberculous lesion. That is to say that the differences which are described as existing between the pathological effects of human and bovine tubercle in the rabbit are no greater than the differences found to occur between two different blends of human tuberculous tissue when injected into the cow.

Of course it will be said by the laboratory observer of differences, that whilst this difference in the action of these two groups or blends of human tuberculous tissue on the cow is accidental and occasional, the difference between the action of human and bovine tubercle on rabbits is constant. But this will in no wise deter the clinician observer of resemblances from asserting that these differences are slight differences of blend, and not fundamental differences of kind. Moreover, if the clinician observer of resemblances be attacked for this apparent heterodoxy, he can point to the fact that within the past few weeks the orthodox procedure for differentiating the human from the bovine bacillus in the tubercular diseases of childhood, has in Edinburgh and in Berlin, apparently produced distinctly opposite results (1). But now let us proceed a little further.

This view, that these bacilli are not really different in kind but are simply varieties of the same organism has been upheld by many observers. I need not enter into the literature of this subject extensively, so I will first refer to a very few of the recent articles which have appeared in this connection.

First, there is an article "On the so-called types of the tubercle bacillus," by Dr. Malm, of Christiania, published in *The Journal of Comparative Pathology* for 1912. In this we find the following paragraphs:—

"We must obviously assume that, at first, the originator of tuberculosis, the tubercle bacillus, has been of one and the same species, race, type, or whatever it may be termed. Which species of animal first had the unfortunate distinction of having afforded habitation and nourishment for tubercle bacilli will never be discovered; possibly it was the human race, or possibly some cold-blooded creature, which first adopted and then rendered pathogenic and virulent a saprophytic form of tubercle bacillus. About that it is useless to speculate. This belongs to the archæology of bacteriology, which hitherto has been entirely unexplored.

But as certain as, for instance, the stumpy and gnarled dwarf birch and the tall luxuriant hanging birch originated from the same seed, or, as the British Commission puts it, as the delicate little lap-dog originated from the same stock as the large, robust St. Bernard, so surely is the tubercle bacillus as regards its origin, botanically and etiologically, one and the same creature wherever it is found. This is evident from its shape, its biology, and its pathological effects.

But as the tubercle bacillus in the course of its existence in the different organisms—a bird, a mammal, a human being, or a cold-blooded creature—is subjected to various influences, in part purely vital and mechanical effects, in part chemical and physical influences, it acquires various peculiarities which render it in some some ways difficult to transfer to another and different soil. It is obviously the same with the tubercle bacillus

(1) See Moller. Deutsche Medizinische Wochenschrift, 18th Sept., 1913.

as with other plants; it has to be acclimatized, and varieties are evolved on account of variations of soil ond temperature and other circumstances. And the greater differences in the soil the more difficult the transplantation.

Therefore at present there cannot be properly defined differences between more than three varieties of the tubercle bacillus, viz., those of mammals, of birds, and of cold-blooded animals, respectively. Even if from experiments it appears possible that transformation from the one race or type into the other of these three may occur, and even if it seems that spontaneous representatives of bird bacilli may be found in mammals, mostly in swine, yet the examinations hitherto made appear to prove that in practical life bird bacilli and fish bacilli do not play any part as regards human tuberculosis, without, however, our being able to disregard these forms entirely.

In the mammalian race, on the other hand, the tubercle bacillus is one from an etiological and epidemiological point of view, and the bacillus can be equally dangerous whether it is descended from a human being or from another mammal."

Later on he goes a little further, for he says (page 215):—

"As regards the length of time necessary to produce in a bacillus of the one kind the properties of another race there is, of course, no fixed rule. Circumstances and the difference between the soils play here a large part. But in some instances it seems as if it does not take so very long to produce a variation in the hereditary peculiarities of a tubercle bacillus. To create a human type from a bird type, or from a fish type, or *vice versa*, appears to be difficult, and it is in actual life doubtless of very rare occurrence. But Nocard succeeded in the course of five months in one instance, and of eight months in another, in transforming a human and a bovine tubercle bacillus into a bird bacillus by introducing a cell (capsule) with tubercular bacillus into the pectoral cavity of a bird. Moeller has in the course of a year transformed a human tubercle bacillus in such wise that it grew as a fish bacillus; and Klimmer in the course of about nine months rendered human bacilli non-virulent by passing them through a salamander. Dubard's fish bacilli are also descended from human bacilli, as his carp in the course of a year were fed with human bacilli. I myself have fed carp from the lake Maridalsvand (near Christiania) with human bacilli for several months, but on opening the carp no bacilli were found."

But there are other observers whose types of mind for seeing resemblances are more keen than this, and of such probably Ferrar (2), of Barcelona, is as good an example as can be cited.

As he puts it: "The current dogma runs to the effect that the acid-fast bacillus of Koch is the causal agent of tuberculosis, and that the tubercle itself is the anatomico-pathological "basis" of the disease. "This dogma," quoth Ferrar, "which is generally held to be indisputable, expresses but a half of the whole truth." He does not deny that Koch's acid-fast bacillus has the properties and behaviour, under certain natural conditions, that we observe distinguish it in the laboratory. But he does aver that the knowledge we possess of the behaviour and properties of the organism under the strictly confined conditions of the laboratory does not justify us in declaring that, under natural conditions, it always behaves in the same way, and manifests the same distiaguishing characteristics. He goes further still, and attempts to reveal to us the natural history of the organism in what he considers its different phases. The classical tuberculosis of the clinician is, to Ferrar, but the last stage of a complex process that, in its inception, is a more or less acute affair, without "anatomical signature" and in which Koch's bacillus, as we know it, plays no part. His conception is that, in the beginning, there is a "bacillosis" of the lymphatic system, with a consequent destruction of erythrocytes and resultant phenomena of a toxic nature. Later on the liver, spleen, lung, and other organs become the seats of "banal" inflammatory processes, which apparently subside and are cured spontaneously.

Clinically, we do not nowadays recognise the connection between these inflammations and catarrhs on the one hand, and tuberculosis on the other. But in by-gone days they were, with real justice, hailed as evidences of "pretuberculous" processes. The provoking agent of these pretuberculous inflammation is, in Ferrar's view, a saprophytic "ancestor" of Koch's bacillus; not acid-fast and easy of cultivation. But, just as this saprophytic organism modifies the host, so itself does it become adapted to its new environment. It loses its readiness for cultivation; it becomes an obligatory parasite; once an organism capable of rapidly causing death by setting up non-specific inflammatory and toxic processes, now it obtains as the producer of specific chronic tuberculosis: ultimately developing acid-fast properties. Before it passes into the latest and conventional stage of being an acid-fast and obligatory parasite, it exists for some time in the bedy as a *tuberculigenous*, but non-acid-fast and yet obligatory parasite."

Along with this let me refer to a paper by Much, quoted in *The British Journal of Tuberculosis*, for April, 1913 (3). "Much attaches great importance to the position of the tubercle bacillus in the system of acid-fast bacteria. The acid-fast organisms are in a class by themselves, and display certain well marked biological relationship with each other. Deycke succeeded in producing a specific reaction in tuberculous subjects and lepers with a fatty substance derived from a non-pathogenic saprophyte. It was further found that a fatty substance derived from the tubercle bacillus gave the same specific reaction with lepers and with tuberculous subjects as the fatty substance derived from the saprophyte. It was then proved that the reaction capacity of acid-fast pathogenic organisms extended still further, for the specific anti-bodies of infected persons gave specific reactions with acid-fast species that were non-pathogenic. Tuberculin and bacillary emulsions derived from leprosy, smegma, timothy grass, and blind-worm were used. The reactions showed a regular scale of gradations in perfect accord with the degree of relationship existing between the tubercle bacillus and the other organisms."

But as regards our view as to the mutability of the tubercle bacillus, even more cogent information is contained in an article on Johne's disease by M'Fadyean, Sheather, and Edwards, in the volume of *The Journal of Comparative Pathology* (4) already referred to. In this article reference is made to Twort's work, in cultivating the lepra bacillus of man and also the Johne's bacillus in media to which the ground up bodies of dead human tubercle bacilli had been added, and also to his having found that the addition of dead timothy grass bacilli to the medium had given better results than had the addition of human tubercle bacilli. M'Fadyean and his co-workers also point out that Twort and Ingram had obtained little or no growth on media with which the avian bacillus had been incorporated, and entirely negative results when bovine bacilli were employed. M'Fadyean and his co-workers, however, found that the

(2) See *The Universal Medical Record*, April, 1913, for Ferrar's article in the *Arcchives General de Medicine*, January, 1913.

(3) *British Journal of Tuberculosis*, April, 1913, page 115.

(4) *Journal of Comparative Pathology*, Vol. xxv., 1912.

avian bacilli generally acted best, and that they got rather better results with human bacilli than with timothy grass. They also emphaticaliy state that in contradiction to Twort's finding, in their experience the bovine bacillus was as useful for the growth of Johne's bacillus as was the human. But a further very interesting statement which they make is that in animals suffering from Johne's disease, they, on testing them in the ordinary way, obtained reactions in certain cases with both avian and human tuberculin.

The conclusion from all this to which the clinician type of mind will arrive is that his own view as to the mutability of this organisms is all the more likely to be the correct one, and further, that in coming to conclusions as regards those organisms and their relationships to disease we had best regard them in the way which will give us the widest horizon.

Next let me draw your attention to the question of the mutability of those organisms looked at more from the clinical side. You all know of the cutaneous tuberculin reactions, the so-called "Von Pirquet" test. Some information on this may possibly be of use.

Of 116 cases of phthisis tested recently with human tuberculin, 84, or roughly 72 per cent gave a positive reaction, and 32, or 28 per cent, a negative.

But dividing those cases into three classes, A, B, and C, and classing in the A's the favourable cases in the B's, the possibly favourable cases, and in the C's the most probably unfavourable cases, this Pirquet test gives further interesting information. In the first place, it is found that among the advanced and unfavourable cases the reaction is not so frequent as among the early. Thus, among C's the positive reactions occurred only in 66 per cent, while among the B's they numbered 77, and among the A's 75 per cent.

But another point is that if we divide the positive reactions in A's. B's. and C's. into marked and moderate or slight reactions, we find that whilst among the B's., and even still more among the A's. the marked reactions distinctly outnumbered the slight, yet among the C's. the reverse as regards strength of reaction was met with.

In this way, whilst experience is making us recognise the limitations of this cutaneous reaction test as a diagnostic, yet we know that it must mean something, and may be to some extent of prognostic use. To me a marked reaction often presents itself as a favourable rather than an unfavourable sign, it means, at any rate, some reaction power. As every physician knows, the most grave cases of lung tubercle, are often those in which there is no fever, *i.e.* no evidence of reaction for months.

But now let me tell you the results of this cutaneous test with bovine tuberculin.

Of those 116 cases tested with bovine tuberculin, 72, or roughly 62 per cent., were positive, and 44, or roughly 37 per cent., negative. Dividing them again into the classes A. B. and C., we find that among the advanced cases the reaction is not so frequent as among the earlier. Our figures show amongst the C's. positive reactions are only 50 per cent., whilst amongst the B's. they numbered 75 per cent., and among the A's. 50 per cent. Dividing again the positive reactions into marked, and moderate or slight reactions, we find, though to a much less extent, a preponderance of marked reactions again show among the more favourable cases. It would seem then that bovine tuberculin acts like human tuberculin, but to a less marked extent—that is to say, that bovine tuberculin acts very much like somewhat diluted human tuberculin. We have tried also those cutaneous reactions with many other fluids, serums and vaccines, but amongst these I would specially mention sterilised cultures of the timothy and of the smegma bacilli. I cannot as yet give you any figures, but I have no hesitation in saying that with timothy and smegma the difference between their reactions and those of the human and bovine tuberculins is mainly one of much less strength.

But now whilst acceptance of this view of the mutability of these bacilli entails recognition, that between so-called non-tuberculous and the tuberculous persons there is no real dividing line, it entails also the belief that the degree of virulence of tubercle bacilli must vary in individual cases of tubercular disease. That this is so is borne out by the findings of the Royal Commission previously referred to, but to discover if any information on the subject could be obtained clinically we investigated as follows:

Taking two cases of phthisis, say A. and B. A. advanced and acute, B. early and mild—we made sterilised cultures of their sputum, and employed these for the cutaneous reaction test, in them and in other individuals mostly healthy. Curiously, we found that whilst A. reacted better with B's. culture than with his own, and B. with A's. than with his own, amongst the other individuals on whom we tried it, some reacted with A's. and some with B's. in a way which seemed inexplicable. All that we could say, therefore, in conclusion to this, was that although there might be differences in the virulence of the bacilli in any two cases, yet these differences were not more than could be counter-balanced by differences in the skin nutrition power of the various individuals tested.

And now, gentlemen, this paper must shortly come to a conclusion, and so as one who believes implicitly in this mutability of bacilli, and as one who is anxious to induce you all to believe in it as well, I shall leave the consideration of those experimental and culture investigations, and endeavour to put before you as concisely as I can, the ideas on this subject which, after 35 years of work at the interpretation of diseases, I have felt myself compelled to form.

I have already mentioned to you the comparison which has been made of different types of bacilli with different breeds of the dog tribe. In this connection I can easily understand how the bacteriologist, with his type of mind best fitted to see differences, may say—"When the clinician can show me a pair of toy terriers produce a St. Bernard dog, then I'll believe that an innocuous and useful timothy or smegma bacillus can become an active and virulent tubercle bacillus." To this, however, I would reply that such is not the problem. Apart from the untraversable gulf between bacilli and dogs, as regards the times and environments required for such a metamorphosis, the problem is a different one. The problem is really the transformation of a harmless and beneficent organism into a harmful and maleficent one, and if the laboratory worker only looks he will see, not perhaps every day, but certainly several times every year, instances of such transformations among things much higher than bacilli, for he will see instances of most useful and beneficent collie dogs becoming transformed into most destructive and maleficent sheep worriers. Not only this, but he will, if he likes, see or hear of instances where these destructive and maleficent dogs have by contact infected others of their own kind.

Now for what causes the transformation of the valuable and protecting collie into the harmful and destructive sheep worrier, we have a simple and scientific explanation. Remembering that in evolution of the species a wolf-like animal has been the ancestor of the dog, we say that this is simply an example of a reversion in the individual animal from the modern civilized to the ancestral savage type; a reversion brought on, we cannot precisely say how, but probably by something faulty in its environment and handling, through its heredity.

It is a big change to turn from the highly evolved dog to the simple bacillus, but between them we can

recognise some all-important analogies. In the first place we have to remember that the functions of life, the nutrition of the individual and the reproduction of the species are the same in all living beings, high and low. In the second place we have to remember that bacilli, like other living beings high and low, in the various and ever changing habitats, and environments through which in successive generations they passed their life histories, must for some periods live lives during which their activities are controlled and limited, and at other periods live lives in which these enjoy luxuriant freedom. It appears to me to be only in consonance with the harmony of nature to believe that the broad general conditions which govern the transformation of the useful collie into the destructive sheep worrier, and of the harmless germ into the virulent tubercle bacillus, are one and the same, viz., a faulty environment or handling, induced in the progress of civilization by the actions and reactions between them and an ignorant, blundering, selfish humanity.

Take, for example, the cow. Probably in some of its secretions, at any rate, through the grasses which it eats, bacilli, acid-fast or not, are to be found constantly present in its body. As long, however, as the cow is allowed to lead a natural life, in natural surroundings, all is well. Milk, however, is one of the needs of mankind, and with the progress of civilisation and the crowding of people in towns, it is needed in larger and larger quantities. Moreover, the people demand it at the lowest price at which they can procure it, and the dairyman has to make his livelihood. The result is that as regards environment and handling, that is to say as regards exercise, fresh air, sunlight, temperature, kind of food, etc., this cow tends to be so placed that whilst living so as to give the maximum quantity of milk, it is living in exactly the conditions which, by impairing its health and resistance power, favour the transformation of innocuous or useful organisms into virulent ones. But, further, as regards heredity. Bearing in mind the great natural law of the antagonism between nutrition and reproduction, and bearing in mind the fact that milk-giving for the community means the excessive cultivation of the reproductive activities, the breed of cow which the dairyman tends more and more to select, so as best to meet the demands of the community for quality and cheapness, will tend generation after generation to become less and less efficient from the nutritive point of view. That is to say, its tissue nutrition power must become less and less capable of preventing virulent transformations in these bacilli, and less and less capable of resisting their ravages when these transformations are complete (5).

I need not in your presence speak of the dangers of tubercle infected milk, but it must be evident that the remedy must be, not alone the killing off of affected animals, but improvement in all the conditions in which these animals are permitted to live. Indeed, when we reflect that milk is not a food only, but is in addition and in reality an animal secretion, it will suggest to us that the milk from cows not tuberculous, but merely living under the conditions which give the germs within them their tuberculigenous virulence, cannot but be a source of danger. The belief that this is so must, for its acceptance, appeal to common-sense and knowledge, but the statements of Courmont and Cade (6) that agglutinins can be transferred to an infant through the milk of a wet nurse, and of Salge (7) that diphtheria antitoxin may be so transmitted and absorbed by the infant, seem to afford it a scientific corroboration.

(5) For an interesting article on this subject and on milk records see Watson on Tuberculosis. *Scottish Farmer*, Nov. 19th, 1910.

(6, 7) See "Serums, Vaccines, and Toxins," by Bosanquet and Eyre. 2nd Edition, 1909.

I need not discuss with you the subject of the transmission of tubercular disease from bovine to bovine, nor need I enter into a consideration of how in the human subject virulent bacilli may be developed from non-virulent ones when the conditions of life are rendered unhealthy. My object has been to-day to lay before you the subject of the mutability of bacilli—human, bovine, or whatever they may be, and I cordially trust that what I have said may lead you to devote to this subject the careful consideration which I, for one, feel that it most emphatically deserves.

Discussion.

Following Prof. James' lecture there was a discussion which was taken part in by Profs. Dewar, Gofton, and Matheson, and Messrs. Riddoch and Storie.

Mr. Riddoch, in thanking Prof. James for his lecture, said: We are exceedingly obliged to Dr. James for coming here and giving us such an instructive lecture this afternoon. I do not believe that disease organisms were created disease organisms at first, but finding themselves by accident or otherwise planted in animal tissues they endeavour to become accustomed to their surroundings—their environment, and if the vitality of the animal was lowered they of course gained the ascendancy. The whole subject is of considerable importance, and the meeting is now open for discussion if anyone has any remarks to make on the subject.

Mr. Storie: I wish to say how much we are indebted to Dr. James for his very excellent paper which he has read to us to-day. I am sure that from his great experience in working with the tubercle bacilli his opinion must bear great weight. He has opened perhaps one of the very widest subjects he could possibly have taken up with regard to bacteria. It appears to me that it is principally a matter of evolution of the bacteria and nothing else. What we understand as this tubercle bacillus may perhaps be the most adaptable of all living organisms; it can adapt itself to more extraordinary circumstances than perhaps any other living organism we are aware of. The burning plains of India and the Polar regions are quite the same to it. All animals, from the warm-blooded mammals to the cold-blooded fish are quite the same to it, and we must see, when considering these things, what a scope there is for this evolution and mutability. I have listened with great interest to this paper, more especially as I have thought a great deal on the subject myself. I feel much indebted to Dr. James, and I am sure it will give us all food for reflection for many a long day.

Professor Dewar: I do not need to say anything. I listened with very great pleasure to my friend and colleague, Dr. James. This paper will make us think. I find that Dr. James is still the old Dr. James. He does different things for himself, he causes us to think, too, I have not the least doubt. I know that there are differences in the virulence of the tubercle bacillus. I know I have seen tubercle existing in a herd, over which I have had control, for years, and not doing very much harm, and a new animal perhaps introduced as a different type—a different strain, if you will—evidently a tubercle which propagated itself and the contagion to others of the herd very rapidly. I have no doubt that where there can be mutability there are differences in the virulence of strains, of bacillus. It is a big subject, we could argue on it for weeks. (Laughter.)

Professor Gofton: I am sure that, though Dr. James' paper contains rather too much for one to absorb in the short time, he has taken up a very big question, and one I would not like to attempt to discuss at present without having the opportunity of reading and studying it. I have been extremely interested in listening to Dr. James' remarks, because of the fact that the views he has placed before us have been so far from the orthodox views. It does us a very great deal of good to have it

brought so forcibly in front of us that there are at least two views on any question. I would venture just to touch on the paper. I have been able to follow some of his arguments, and on the remarks he has drawn certain conclusions, but with regard to others I must confess I have not been able to follow him, and I must say I have felt, rightly or wrongly, that some of the analogies he has drawn are just rather too wide—certainly wider than I am able to appreciate. I cannot quite follow the significance of his analogies in some instances. I wish to express my extreme pleasure in having the opportunity of listening to his paper, and the expression of his views. (Applause.)

Professor JAMES, replying to the discussion, said: I want to express my great pleasure in coming here and finding myself among you. This subject is a great, big, broad one, and my object was rather, what I find myself doing every day, to impress upon my neighbours that our knowledge is not finite—that we are in a state of transition regarding knowledge. The tendency of late times has been far too much to believe that things are settled and done with and cannot be controverted. I wanted to stimulate the optimistic spirit if I could. It is for this reason that I took up this question of mutability. One's time is limited, and this subject, which you and I have in hand, I thought might interest you. I can only express to you my great thanks for allowing me to come here and for the patience and attention given to me to-day. (Applause.)

Mr. RIDDOCH: We are extremely grateful to Dr. James for giving us such an interesting paper, and I propose that we give him a hearty vote of thanks. (Applause.)

SPLIT PASTERN.

Mr. STORIE submitted a specimen of a split pastern. He said: The symptoms at first were very like foot lameness. Pressing the back of the foot was the only way we could get the animal to evince any pain. In a few days the lameness had increased, and in three or four days you could get a little pain by twisting the toe. However, the animal became very lame, and it was destroyed.

FRACTURE OF INNOMINATE—REPAIR.

Mr. Peggie exhibited an innominate bone showing a wonderful, though imperfect, repair of a fracture, and gave the following description of the case: "Two months ago I was called to see a carriage mare, 16 years old, with the history that she had come in lame the night before. The gentleman, who was driving the pair at the time, was coming down a slight incline at the walk, when the mare suddenly "huffed" herself, and immediately hopped off on three legs. As he had only about a quarter of a mile to the house, he trotted her home. The groom hosed the fetlock with cold water, and applied some concoction to the abrasion, thinking that the mare was lame from that cause; but as she was no better next morning I was consulted. When I arrived I found her sweating a little, temperature 102° F., and showing, when she walked, marked symptoms of hip lameness. Nothing could be seen or felt on external manipulation, but when the leg was lifted and abducted, she evinced signs of pain. I examined her per rectum and came to the conclusion there was a fracture of the body of the ischium. I informed the owner, who was very surprised and, in fact, questioned the diagnosis. He said he would like her treated, as she was a favourite. A dose of physic was given, and a strong mixed blister placed over the affected region, and a "wait and see" prognosis taken up. She was not put in slings, as she was of rather a nervous disposition. After the blister had been on for about six weeks I had her taken out of the box, and tried her at the walk, and was pleased to find her walking fairly sound. I therefore advised that she should have a run at the grass. Accordingly the mare was turned out. The owner, however, became impatient, and had her taken up, after having been only two weeks out. I now examined her again, and found she could walk and trot surprisingly well, and showed very little pain on extreme abduction of the affected (near) leg. I may say this animal was insured, and the insurance company instructed Professor Dewar to make an examination of her. Per rectum the Professor also diagnosed fracture, and endorsed my treatment. Unfortunately the mare, after doing so well, died from twist of the large bowel nine weeks after her accident. On post-mortem examination, I found, as you will see from this specimen a double fracture; first of the shaft of the ischium, and second of the pubis. I may say no swelling was ever seen in the mammary region. I think the case is of interest, first, from the obscure cause of the accident, also from the slight nature of the lameness, considering the grave nature of the injury, and also from having so perfect a bony union in two months' time in such an aged animal.

JAMES HENDERSON, Hon. Sec.

NORTH WALES VETERINARY SOCIETY.

The annual meeting was held at the Mona Hotel, Carnarvon, on Tuesday, September 9th, 1913. The following members were present: Messrs. Frank Booth, Colwyn Bay, President; Richard Jones, Towyn, Hon. Treasurer; Hugh Williams, Ty Croes, Vice-President; R. S. Rowlands, Abergele; C. W. Cartwright, Dyserth; Wm. Hughes, Cærwys; O. Trevor Williams, Llangefni, John Mathews, Llanfair, P.G.; Owen Thomas, Llanerchymedd; L. W. Wynn-Lloyd, Hon. Sec.; and Jas. Smith, Llandudno, visitor.

Apology for non-attendance was received from Dr. Evans, M.R.C.V.S., Bangor.

The minutes of the previous meeting having been read, Mr. Trevor Williams proposed, and the Hon. Sec. seconded, that the annual subscription be reduced from 10/6. to 5/-. Carried.

ELECTION OF OFFICERS.

President.—Mr. Hugh Williams, Ty Croes.

Vice-President.—Mr. Wm. Hughes, Cærwys.

The Hon. Treasurer and Hon. Secretary were re-elected.

The PRESIDENT gave a brief *résumé* of the working of the Tuberculosis Order (1913), and discussed the proposed Milk and Dairies, and Anæsthetics Bills.

The meeting terminated with a hearty vote of thanks to the retiring President.

After tea the members witnessed two operations on cases provided by the Hon. Sec.; one of scirrhous cord, operated upon by the Hon. Treasurer; and another of umbilical hernia, by Mr. Trevor Williams, by means of Malloch's aluminium clam.

It will interest the members to know the progress of these cases. The case of scirrhous cord was discharged in four days, and made an excellent recovery.

The one of hernia was seen daily, the clam tightened, and the part dressed with an antiseptic solution. As we had attended a case of tetanus on the farm last year, we injected a dose of anti-tetanic serum on September 6th as a precaution. On the 23rd we went to remove the clam, and were surprised to find that tetanus had set in. The clam was removed and serum injected daily for eleven days. K.I. was given in the drinking water, and Pot. brom. C. Chloral hydras in the form of electuary. He was taken out for exercise on October 14th, and has since maintained good progress. I might add that the operation was a complete success.

L. W. WYNN-LLOYD, Hon. Sec.

DISEASES OF ANIMALS ACTS, 1894 TO 1911.

Return showing the number of Premises on which the existence of TUBERCULOSIS has been notified to the Board of Agriculture and Fisheries during the month of October, 1913.

ENGLAND (Counties)		*
Bedford (*Premises*)	1	1
Berks	4	4
Buckingham	2	2
Cambridge	2	2
Isle of Ely	2	2
Chester	36	40
Cornwall	17	18
Cumberland	3	3
Derby	22	24
Devon	27	29
Dorset	4	4
Durham	16	21
Essex	8	9
Gloucester	7	7
Hants	1	1
Hertford	2	2
Huntingdon	7	7
Kent	10	11
Lancaster	46	47
Lincoln, Holland	1	1
„ Kesteven	8	9
„ Lindsey	3	3
London	3	5
Middlesex	6	6
Norfolk	2	2
Northampton	14	15
Northumberland	7	8
Notts	8	8
Oxford	1	1
Rutland	1	1
Salop	9	9
Somerset	12	13
Stafford	27	30
Suffolk	3	3
Surrey	13	13
Sussex, East	2	2
„ West	2	2
Warwick	23	25
Westmoreland	4	4
Wilts	34	38
Worcester	5	6
York, East R.	7	7
„ North R.	12	12
„ West R.	38	42
WALES.		
Anglesey	11	11
Carmarthen	2	2
Denbigh	3	3
Flint	6	6
Montgomery	1	1
SCOTLAND.		
Aberdeen	12	12
Argyll	2	2
Ayr	19	24
Berwick	5	5
Dumfries	5	5
Fife	8	9
Forfar	6	6
Haddington	1	1
Kincardine	1	1
Kinross	1	1
Kirkcudbright	8	11
Lanark	7	8
Midlothian (ex City of Edin.):	2	2
City of Edin.	2	2
Orkney	1	1
Perth	13	16
Renfrew	2	2
Ross and Cromarty	1	1
Roxburgh	8	8
Selkirk	1	1
Stirling	4	4
Wigtown	8	11
TOTALS	602	655

* Number of bovine animals suffering from tuberculosis of the udder, tuberculosis with emaciation, or giving tuberculous milk, in respect of which notice of intention to slaughter has been received.

The Tuberculosis (Animals) Committee.

A meeting was held on 22nd ult., in London. The Earl of Northbrook, who presided, explained that as the outcome of a meeting of the Committee held in April last, he had written a letter to the Board of Agriculture making certain recommendations. and stating that the Committee were apprehensive that in its present form the Tuberculosis Order would inflict some hardship upon many owners of cows which were apparently healthy. It had recently been suggested to him that the time had arrived when the Committee might meet to consider the working of the Order, which had been in operation since May 1st. For the assistance of the Committee he had sent a communication to every County Council in Great Britain, asking for detailed information as to the administration of the Order, and up to the present date some fifty replies had been received.

It was resolved that the Committee be adjourned until a date to be fixed by the Chairman, and that in the meantime the information obtained from the various counties be printed and circulated to the members of the Committee.

THE LATE WM. HUNTING AND HIS INFLUENCE ON VETERINARY SCIENCE.

> "For some we loved, the loveliest and the best
> That from his Vintage rolling Time has prest,
> Have drunk their Cup a Round or two before,
> And one by one crept silently to rest."

The history of the profession shows that from time to time there were certain members who, by their researches, observations, devotion to work, example and personality, exerted a remarkable influence in the direction of progress. In the earlier days progress was achieved by the clinician; no doubt it was slow, for he had to depend on his unaided efforts to discover more successful methods of diagnosis and treatment; moreover, there were prejudices to overcome, and the duties to be performed left little time for investigation. Later on, with the advent of pathology, and physiology, and more precise methods of diagnosis, the opportunities for progress were more numerous, the number of workers increased, and preventive medicine commenced to occupy an important position. Slowly, but surely, the profession has advanced, until at the present day it has reached a position far beyond the expectations of its most enthusiastic pioneers. But it must not be forgotten that all this progress and advancement is the work of individuals, that it required devotion to duty, an iron will, self-sacrifice, and an enthusiastic spirit. Moreover, in addition to these attributes, personality and example were necessary in order to attract and lead others to commence and to carry on the laudable ambition of raising the profession to its highest level, of increasing its utility, and improving its literature.

Amongst the long roll of those who have exerted a marked influence on the progress of veterinary science, the name of William Hunting will ever remain pre-eminent. Richly endowed with all the attributes and qualities mentioned above, he has shed lustre on our calling, and his career is an example which many will, no doubt, emulate, but few will succeed in truly following. His additions to veterinary literature are too well known to need comment, and his inducement to others to publish their observations and experience has resulted in a vast accumulation of valuable material in the volumes of *The Veterinary Record*.

His work in the realms of preventive medicine has never been equalled, and although not always appreciated as it ought to have been, yet it stands as a monument which time cannot efface.

To clinical veterinary medicine and surgery he has made such solid additions that the value of his observations is vividly brought before the practitioner in his daily work. For W. Hunting exposed many "fads and fallacies" in diagnosis and treatment, besides contributing several original observations on the diagnosis of lameness, and the symptomatology of various diseases. His observations led practitioners to think for themselves, to avoid mistaking the shadow for the substance, and to distinguish consequences from coincidences. Accuracy in observation, a sincere desire for the discovery of clinical facts, and a contempt for assumed skill, were leading characteristics in his nature.

In addition to the qualities mentioned, who can forget his charming manner, and his willingness at all times to discuss difficult problems in veterinary science. He was the same to the humblest practitioner as to the one of the highest standing, and this was one of the reasons why the name of W. Hunting was a household word in the profession, and why he was honoured, respected, and loved by every practitioner in the British Isles. And it can be said without exaggeration that to have known W. Hunting was in the deepest and truest sense of the phrase a liberal education, and each one of us must re-

echo the following lines while we mourn for "the sound of a voice that is stilled" :—

"Whatever way my days decline,
I felt and feel, tho' left alone,
His being working in mine own,
The foot-steps of his life in mine."

To perpetuate the memory of so great a man is the duty of the profession of which he was so truly an adornment. As to what form the memorial should take, opinions may differ, but we might well follow the sister profession by instituting a lectureship on similar lines to the Lettsomian, Harben, Milroy, and similar lectures. This would be a perpetual and living memorial, and the matter is at least worth consideration.

E. WALLIS HOARE.

THE LATE MR. WILLIAM HUNTING.

The deceased gentleman was born in Camberwell, and therefore he is by birth a Londoner ; his mother (née O'Higgins) was an Irish lady. At the age of five years he accompanied his parents to South Hetton, where his father in 1851 obtained, through the instigation of the late Prof. Spooner, an appointment ; he received his general education at the Edinburgh Academy and his professional education at Gamgee's New Edinburgh Veterinary College, subsequent to this he finally settled in the city of his birth—London—where he established his reputation.

Therefore, the three nations, Ireland, England, and Scotland, have all assisted in the career of the late Willlam Hunting.

HENRY GRAY.

Iceland Ponies.

Iceland ponies are exported annually to the number of (approximately) 2,500, whose value is estimated at £12,000. They are chiefly sent to Denmark : in 1911 490 were exported to the United Kingdom, and their value was £2,332. They do well almost invariably in this country, and may be relied upon to get through a lot of work.

An admirer of these ponies thus comments : "Their early conditions, climatic and otherwise, tend to give them a good constitution, and it is a case of survival of the fittest. They are, as a rule, good-tempered and easily managed ; they are hardy and willing, with plenty of stamina. Their legs and feet do not leave much to be desired, and they are fine "doers" in the stable. They seem to thrive even when the material conditions are against them to some extent."—*Live Stock Journal.*

ARMY VETERINARY SERVICE.

Extract from *London Gazette.*

WAR OFFICE, WHITEHALL, Nov. 4.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.
Lieut. M. Bray resigns his commission. Dated Nov. 5.

GOVERNMENT PUBLICATIONS.—Messrs. Wyman and Sons (Limited), official sale agents in England and Wales for Parliamentary papers and Stationery Office publications, have published the following, the price including postage : Agricultural (Ireland) Report under Diseases of Animals Act, 1912, 4d. ; Exportation of Worn-out Horses, 1d.

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.	Anthrax. Outbreaks Confirm'd	Anthrax. Outbreaks Reported	Anthrax. Animals Confirm'd	Anthrax. Animals Reported	Foot-and-Mouth Disease. Outbreaks	Foot-and-Mouth Disease. Animals.	Glanders† (including Farcy) Outbreaks	Glanders† (including Farcy) Animals.	Parasitic Mange. Outbreaks	Parasitic Mange. Animals.	Sheep Scab. Outbreaks	Swine Fever. Outbreaks.	Swine Fever. Slaughtered. *
GT. BRITAIN. Week ended Nov. 1	6		7				2	6	24	42	6	62	710
Corresponding week in 1912	11		11				6	17	22	32	22	49	880
Corresponding week in 1911	20		22				3	12			7	33	578
Corresponding week in 1910		29		38			2	10			6	41	456
Total for 44 weeks, 1913	458		507				129	318	2103	4157	147	2110	27650
Corresponding period in 1912	650		732		82	639	154	288	2502	5317	208	2528	34377
Corresponding period in 1911	743		917		18	467	180	431			323	2114	25393
Corresponding period in 1910		1235		1470	2	15	319	933			367	1255	11643

†Counties affected, animals attacked : Essex 2, Kent 2, London 2.

Board of Agriculture and Fisheries, Nov. 4, 1913.

IRELAND. Week ended Nov. 1	...	...	...	...	1	1	Outbreaks 1	6	...	45
Corresponding Week in 1912 ...	...	...	1	18	...	...	...	5	4	22
Corresponding Week in 1911 ...	...	...	...	...	...	...	...	2	2	78
Corresponding Week in 1910 ...			...	...	...	...	...	5	4	91
Total for 44 weeks, 1913 ...	...	...	...	...	1	1	110	429	127	814
Corresponding period in 1912 ...	3	3	66	374	...	...	58	290	198	1603
Corresponding period in 1911 ...	7	14	...	...	2	3	53	283	115	2001
Corresponding period in 1910 ...	7	10	...	...	1	2	62	387	82	1869

* These figures include animals slaughtered and found affected on post-mortem examination.

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Nov. 3, 1913

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Hunting Memorial.

It has been brought to my notice that there is a desire amongst the members of the profession and friends of the late William Hunting to perpetuate his memory.

A meeting will be held at the Royal College of Veterinary Surgeons, 10 Red Lion Square, W.C., on Thursday, Nov. 13th, at 7.30 p.m., to consider proposals for carrying this into effect. It is hoped that all those who are interested in the movement will be present.

HENRY GRAY.

23 Upper Phillimore Place, W.

Personal.

JEFFRIES.—On March 4th, at York House, London Road, Guildford, the wife of H. Haywood Jeffries, M.R.C.V.S., of a son.

The late Sir RICHARD COOPER, of Lichfield, chemical manufacturer, and one of the leading stock breeders in the country, left £519,300. He stated in his will :—"I make no charitable bequests (in the sense in which the word charity is commonly used), because I am confident that my son will continue what appears to me the best form of charity, namely, to remember with kindness all those who have been friends or intimate acquaintances of myself and family, and will give them financial help in all cases where they stand in need of it."

OBITUARY

EDWARD NETTLESHIP, F.R.C.S., F.R.S., M.R.C.V.S., Hindhead, Surrey. Graduated, Lond: May, 1867.

Edward Nettleship, F.R.C.S., F.R.S., M.R.C.V.S.

The death of Mr. Edward Nettleship took place on Oct. 30th at his residence at the Longdown Hollow, Hindhead, Surrey, in his 69th year. He was born at Kettering on March 3rd, 1845, and was educated in his natal town. Some time after he had obtained the Membership Diploma of the Royal College of Veterinary Surgeons, he succeeded the late Mr. Wm. Hunting, F.R.C.V.S., as Professor of Veterinary Science at the Royal Agricultural College, Cirencester, but after a short stay there he returned to London to study human medicine, in which he afterwards made himself famous. Early in his career as a medical man he gained for himself a great reputation in ophthalmology, and became consulting surgeon to the Royal London Ophthalmic Hospital and St. Thomas' Hospital.

In 1894 he was consulted by Mr. Gladstone, upon whom he operated for cataract with great success, and hence his name became known far and wide.

He wrote numerous articles on ophthalmological subjects, and published a little work on "Diseases of the Eye," which became for a great number of years the standard book on the subject for students and junior practitioners, both medical and veterinary

During the past two years he, in collaboration with Prof. Karl Pearson and Mr. Usher, brought out a series of volumes on the question of Albinism in man and in animals, including among other subjects "wall-eye" in horses. In 1912 he was elected a Fellow of the Royal Society of London, the most coveted honour a scientific man can obtain.

A few years ago Mr. Nettleship retired from practice, but during his retirement he took a great interest in many questions relating to this profession, and within the past few months published, in conjunction with Mr. A. C. Hudson, a valuable paper "On Optic Neuritis without Intra-cranial disease, in a pedigree bull," a copy of which he sent to several of his veterinary friends. He was greatly interested in the problem why roaring in horses generally affected the *left* recurrent nerve. Hardly five weeks before his death he was in active correspondence with members of his old profession on these and allied subjects, so keen was his desire for knowledge.

Two years ago he underwent a severe operation with complete success after a prolonged after-treatment, and had an attack of influenza last spring. On the writer of this notice enquiring on Sept. 20th as to his health he replied: "Thank you, I am quite well, but find that one cannot at my age have illnesses for nothing."

In 1869 he married Elizabeth Endacott, daughter of Mr. R. Whiteway, of Compton, Devon, who survives him.

It is worthy of note that a professional training in veterinary medicine has been the starting point of many men, who have afterwards become famous in human medicine. Among such were Joseph Sampson Gamgee, Thos. Orme Dudfield, late Medical Officer of the Royal Borough of Kensington, Balfour of Edinburgh, Raymond, the successor of Charcot at the Saltpetrière, who a year or two before his death received the LL.D., Oxford (Hon. Caus.)

Mr. GEORGE D. HOYLAND, V.S., Wombwell View, Barnsley, Yorkshire. Death occurred on Nov. 3rd, from Carcinoma of liver. Aged 68 years.

CORRESPONDENCE.

DIAGNOSIS.

Sir,

I must again crave your indulgence in order to answer Mr. McKenny's question. The question is easily disposed of—the answer is in the negative, *cela va sans le dire*. But I still deny that, in any of the articles for which I am responsible, or in those which have appeared in connection with the subject, the impression could be conveyed to a reader of ordinary intelligence that the writers intended their confessed "want of skill" to apply to all members of the profession. Most of your readers understand that if a writer chooses to employ the first person plural, it does not by any means indicate that said writer "arrogates to himself the prerogative of measuring the skill and ability of others." If Mr. McKenny holds an opposite view, then we shall "agree to differ."

Fortunately Mr. McKenny has not used the first person plural, otherwise the public might expect a similar degree of skill in other practitioners. Mr. McKenny says that whenever he formed a definite opinion on a case, the cadaveric lesions most satisfactorily corroborated his ante-mortem diagnosis. He does not, however, give us the proportion of cases in which he forms a definite opinion. Very much depends on this. If he forms a definite opinion in a *large* number of cases and finds that said opinion is always supported by post-mortem evidence when the cases succumb, then indeed he must have exceptional skill in diagnosis.

When Mr. McKenny says that he frequently finds "most interesting specimens apart from the ailments from which the animal was suffering," does he mean to infer that no symptoms were associated with the presence of such lesions? If so, the clinical interest falls to zero.

"A good reputation and confidence in one's ability to diagnose cases," do not always go hand in hand with knowledge, nor with wisdom, but they are essential attributes to the *savoir vivre*. The days of hero-worship are getting numbered. The public are commencing to estimate the stoic, not at his own valuation, but by another standard. The man who fancies that he is immune to errors, although he still may be able to persuade certain clients of his superiority, soon loses his influence in this direction. He may fool some of the people all the time, all of the people some of the time, but he cannot fool all of the people all the time.—Yours, etc.,

Nov. 3. E. WALLIS HOARE.